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DMF NEWS

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Black sea bass on the rise but allocation controversies lie ahead

Beautifully iridescent, sparkling deep blue and dark black with splashes of white, black sea bass are sights to behold when they break the surface on hooks, in pots, or in nets. Especially when a "jumbo" is caught, one cannot help but admire its striking appearance resembling the sort of fish you'd expect to find on a Caribbean coral reef. Looking like a grouper of tropical waters, this spiny-rayed fish is now subject to an allocation dispute among Atlantic states, with Massachusetts seeking to maintain its well-regulated and conservative inshore commercial fishery.

Caught in our waters primarily south of Cape Cod, in Buzzards Bay, and near the Islands, black sea bass arrive in April or early May after over-wintering along the continental shelf extending from about Hudson Canyon, southeast of New York, to North Carolina. DMF tagging of black sea bass in the 1980s revealed extensive movements of sea bass to those areas where they are subject to offshore fisheries prosecuted by trawlers and pot fishermen hauling bass up from great depths. Our spring through fall fishery is inshore at relatively shallow depths where each licensed fish potter fishes up to 200 pots and operates with other restrictions that limit landings. For example, in 1986, DMF implemented a 12" minimum size championed by commercial fishermen themselves who saw the need for black sea bass conservation efforts in our waters, and elsewhere.

Unfortunately, Massachusetts is at the most northern range of sea bass distribution. Consequently, our fisheries are more affected by overfishing than any other state, especially since our commercial pot fishermen, responsible for most of our state's commercial catch, have to wait for sea bass to come to them as opposed to fishermen hunting for bass with mobile gear (e.g., trawlers) and high-tech fish-finding equipment for many months offshore.

With overfishing, abundance drops and the species' range constricts. Availability is reduced, sometimes dramatically. We witnessed this from 1992 through 1997 when sea bass catches decreased by large amounts. Abundance in our waters at that time was way down as evidenced by our own bottom trawl survey of Massachusetts waters. Other states, such as New Jersey, saw their landings increase or drop just a bit.

Federal records show the Massachusetts commercial fishery landed just 1.56 million lbs. from 1988 through 1997. As with scup and most other fisheries, it's likely many landings were missed since buyers of sea bass might not have been part of the federal data collection system, and DMF didn't require sea bass reports from all fishermen. In contrast, some mid-Atlantic states landed over 10 million lbs during the same period and for much of that time had an 8-inch minimum size for sea bass commercial fisheries and no other restrictions in place. Massachusetts applied the 12" minimum and other restrictions, significantly reducing numbers of fish taken and increasing yield per recruit – standard conservation objectives of basic fisheries management.

We cannot overlook the impact of recreational fisheries on sea bass mortality throughout the region. For example, recreational fishery landings in New Jersey peaked at 4.5 million lbs. in 1996. Recreational landings in New England pale in comparison. Massachusetts landed only 22,000 lbs. in

Black sea bass have rebounded dramatically in the past few years but Massachusetts commercial fishermen are opposing plans crafted by the Mid-Atlantic Council to constrain the state's landings. DMF Photos by David Pierce.

the same year. Massachusetts recreational fishermen have been restricted by a 12" minimum size since 1986.

Sea bass is managed through a commercial quota system and recreational fishery target. The annual commercial quota is divided into quarters. Massachusetts commercial fishery happens to begin about May - mid-way through the second quarter. In 2000 our landings finally rose in response to increased abundance in our waters. This rise was consistent with the magnitude of past years of Massachusetts landings when bass were abundant locally. When our fishermen finally saw a return of sea bass to our waters and a profitable fishery, other states' fishermen complained, and the Mid-Atlantic Council responded on their behalf to create state allocations.

Upsetting to our fishermen was an April ASMFC Sea Bass Board decision to attempt to establish for next year a state-by-state allocation of the sea bass commercial quota and to abandon the quarterly quota approach. The Board adopted a Plan Information Document (PID) to be aired at ASMFC public hearings for the purpose of gathering information about the commercial fishery and discussing alternatives for sea bass management. However, prior to the hearings, the Board adopted the state-by-state allocation system as the preferred alternative - a very inappropriate decision in our view, since stating a preference beforehand seemed to subvert the intent of the PID process. Nevertheless, this decision signaled to Massachusetts that the die was cast - that an alternative had already been chosen.

What would happen if this approach were in place? The PID revealed options that would fix Massachusetts at 3-7% of the annual quota. New Jersey would receive about 33-40%. Using the 2001 quota as an example, Massachusetts would receive about 51,000-123,000 lbs., thereby decimating our commercial fishery. Forevermore, our commercial fishery, which has been able to prosper under our conservative management strategies during the past decade, would be held down to the advantage of states with a record of high exploitation.

DMF feels strongly that our inshore commercial fishery needs special consideration by ASMFC and the Council. A June 8 DMF sea sampling trip on board a sea bass potter was a reminder to this author of the way these fishermen conduct their fishery - "resource-friendly" gear fished in relatively shallow waters provide excellent escapement and survival for juvenile sea bass. Our fishermen commonly use vents 2 3/4" diameter allowing escapement of the vast majority of bass less than 12". Fish move into and out of un-baited pots where they seek shelter. Bass prefer to hang out on bottom structure such as rocks and on whatever else happens to break the monotony of relatively flat topography of southeastern Massachusetts ocean bottom.

Council and ASMFC management plans have an escape vent 2" minimum size requirement geared for escapement of 50% of sea bass 9" and smaller that enter pots. Although Massachusetts remains at 12", the region-wide minimum fish size is now 10". The 2" vent minimum size was required in January 1997; consequently, for many years pots fished in deep waters off other states were responsible for high mortality of small sea bass. The 1996 ASMFC Sea Bass Plan noted that *"relatively few sea bass fishermen in the Mid-Atlantic have escape vents in their pots and traps. This gear is fished at varying depths and hauled to the surface quickly with hydraulic or electric pot hauler. As a result fish may experience internal trauma due to changes in pressure and a significant portion may not survive."*

Massachusetts sea bass commercial fishermen already feel unfairly treated. Note the "Rules Update" with a description of recent ASMFC-mandated changes in the daily landing limits for sea bass. These changes prompted these fishermen to seek a preliminary injunction against DMF to prevent us from continuing with the new, much lower limits. Last year in May commercial bass fishermen could land 1,500 lbs. per day. The limit was dropped for part of May to 1,000 lbs. per week with DMF implementing a 250 lbs. per day limit except on Thursday, Friday, and Saturday when no landings were allowed. At press time, the Barnstable Superior Court Judge who heard the plaintiffs' arguments issued a decision not to grant an injunction, stating that jurisdiction to do so did not lie in his court.

Patience and understanding are key elements of cooperative interstate fisheries management through ASMFC. We hope our counterparts, especially in the Mid-Atlantic, will come to understand how resolute we are with our insistence that Massachusetts be treated fairly and equitably. Our position already has been made clear to ASMFC, and the Council, by way of formal comments on the ASMFC PID. Those comments included: *"Amendment 13 [Council template for ASMFC PID] doesn't deal with black sea bass conservation and continued overfishing…it is an amendment for allocation purposes only…The Board and Council must think more carefully about the root cause of problems with the quarterly quota approach, i.e., small quotas due to overfishing and too much mortality of juvenile sea bass. Additionally, there must be a more thoughtful review and determination of a fair and equitable state-share system, especially as to how it would affect Massachusetts sea bass fishery prosecuted primarily with pots and hooks. This review should pertain to other state' shares as well. Otherwise, conflict with Massachusetts and other states is certain."*

By David Pierce, Ph.D., Deputy Director

Sea bass catch in a sea bass wire pot left in the water (soaked) for three days. Note, scup taken as a small by-catch. The door is open as fishermen prepare to spill their fish into a fish tote. Note the 2 3/4" circular escape vent in the upper left hand corner.

Recovery Commission hears good news

The Massachusetts Fisheries Recovery Commission (MFRC) met in Gloucester on June 21 with about 60 people in attendance including many leaders of the Commonwealth's seafood fishing industry, state and local politicians, Department of Fisheries, Wildlife, and Environmental Law Enforcement Commissioner Dave Peters, DMF Director Paul Diodati, UMass Dartmouth's School for Marine Science and Technology Director Dr. Brian Rothschild, Massachusetts Marine Fisheries Commission chairman Mark Amarello, National Marine Fisheries Service Regional Administrator Pat Kurkul, and many others. The MRFC is co-chaired by Directors Diodati and Rothschild.

The meeting's purpose was to: (1) update the Recovery Commission on the status of fisheries research funded by the MFRC – research done in collaboration with commercial fishermen, and (2) describe new initiatives for a more formal relationship between DMF and the UMass campus system that will result in cooperative marine fisheries research for the betterment of fisheries management in Massachusetts and throughout New England.

The meeting began with introductory remarks from Senator Bruce Tarr who welcomed the Commission to Gloucester and recognized Senator Mark Montigny's continued support for the Commission. Both senators were the originators of the MFRC. Executive Director Vito Calamo provided his own welcoming address and indicated MFRC accomplishments and expectations for the next few years. He praised the fishing industry for its conservation efforts and cooperation with fisheries researchers. He also highlighted Gloucester's new processing plant for sea herring and mackerel on the State Fish Pier – a major accomplishment made possible by hard work in the City of Gloucester, state support, and a linkage with Irish investors already well established in the world marketplace for herring and mackerel. MRFC members and guests toured the facility later in the afternoon with plant manager David Ellenton

Diodati and Rothschild reviewed ongoing research in support of fisheries managers' efforts to rebuild and maintain sustainable and productive fisheries for groundfish and sea scallops. Dr. Rothschild highlighted his Trawler Project – a joint SMAST and fishing industry project collecting real-time data primarily on cod and haddock and on their ocean environment during routine fishing operations extending from Nantucket Shoals through Great South Channel onto Georges Bank. Over 80 trawler trips had been completed with 627 days at sea for a total of about 2,800 hauls. He also summarized the MFRC cod tagging project with 80 fishermen participating and almost 5,900 cod tagged.

Director Diodati emphasized that many stocks of fish are recovering through the sacrifices of fishermen living under restrictive management regimes that have dramatically impacted where and when commercial fishermen are allowed to fish. He touted DMF's resource assessment project and its 23-year time series of bottom trawl survey data from state waters.

DMF Deputy Director David Pierce described state and federal survey results showing many positive signs for groundfish rebuilding, along with sharp increases in summer flounder, black sea bass and scup. He noted that some of these recoveries were in the beginning stages due to a few strong year classes. Therefore, fishery managers should take great care to ensure these year-classes reach maturity and reproduce. For cod in the Gulf of Maine, managers must devise effective ways to reduce discards caused by regulations (low trip limits) and protect the incoming 1998 and 1999 year classes. These young fish represent the future of the Gulf of Maine cod fishery.

David Ellenton, plant general manager, led a tour of the new state-of-the-art sea herring processing facility for the Marine Fisheries Recovery Commission. DMF Photos by David Pierce.

The meeting ended with Executive Director Calamo encouraging more research with fishermen, and he promised that the MFRC would be in the lead.

F/V Vessel Mohawk rigged for sea herring at the Gloucester State Fish Pier

Work continues to improve commercial fishing gear

DMF's Conservation Engineering Program was awarded $300,000 in federal funding through the Northeast Consortium last year (see DMF NEWS, 4th Quarter 2000, page 5). Since last fall DMF personnel, Manomet Center for Conservation Sciences (MCCS) observers, participating fishermen, and scientists have spent many days at sea and on land conducting experiments and analyses. The following summaries describe progress for each project.

Improving Selectivity and Utility of Hook Fishing

This study has four objectives, and progress has been made on two of them. From February through April, live cod captured by Chatham hook fishermen were transported to Woods Hole Oceanographic Institution raceways. Fish response to artificial baits developed by Dr. Susan Goldhor of the Center for Applied Regional Studies was filmed and evaluated by DMF personnel using underwater video cameras. The best recipes will be tested at sea. These artificial baits may allow fishermen to be more selective when targeting cod. This study also will determine if flatfish can be caught in commercial quantities using hook gear. The Cape Cod Commercial Hook Fishermen's Association has three boats testing some gear. Data on flatfish catch are being collected for analyses. Work continues on this project.

Trawl Nets Designed to Reduce Cod By-catch

Thirteen days of field testing (48 hauls) of two modified trawl nets were completed during May and June off Provincetown on the fishing vessel *Blue Skies*. Capt. Luis Ribas' design, replacing most of the twine on top of a groundfish net with large square mesh, and DMF's Arne Carr's design, removing the top wings and belly to shift the headrope back to the start of the extension, appear to be able to remove up to 90% of cod when compared to a standard net. DMF underwater video cameras revealed how fish behavior is key to project's success. In Luis Ribas's net, cod passed upwards through the large square mesh and escaped; in Arne Carr's design, cod rose ahead of the headrope and escaped.

Testing of Low-Profile Gillnets to Reduce Cod By-catch

Fifteen overnight sets of two experimental gillnets designed by Bob MacKinnon of Scituate were made in December 2000 and January 2001. F/V*Lady Irene* (Capt. Scott MacKinnon), F/V *Michael Brandon* (Capt. Tom Bell) of Scituate and F/V *Sasquatch III* (Capt. Paul Cohan) of Gloucester participated in the study, carrying DMF personnel and Manomet observers.

Bob MacKinnon's designs alter the floatline. In one net the floatline is replaced by a second leadline; in the other, lead is added to the floatline every 30 feet. The point of the modifications is to lower the profile of the net so cod swim over it while flatfish are caught.

An ROV (remotely operated vehicle with a TV camera) was used to profile the nets underwater. We were surprised to see that the two leadlines from the dual leadline net ended up laying close together with a cloud of webbing drifting between them. Both this net and the added-lead net in fact stood lower than standard gillnets.

Catch data so far are encouraging. Modified nets catch fewer cod. However, data from some days were unusable due to small catches. Bad weather and area closures forced us to set nets in places where fish were scarce. We recently have been awarded further funding by the Northeast Consortium to continue this project.

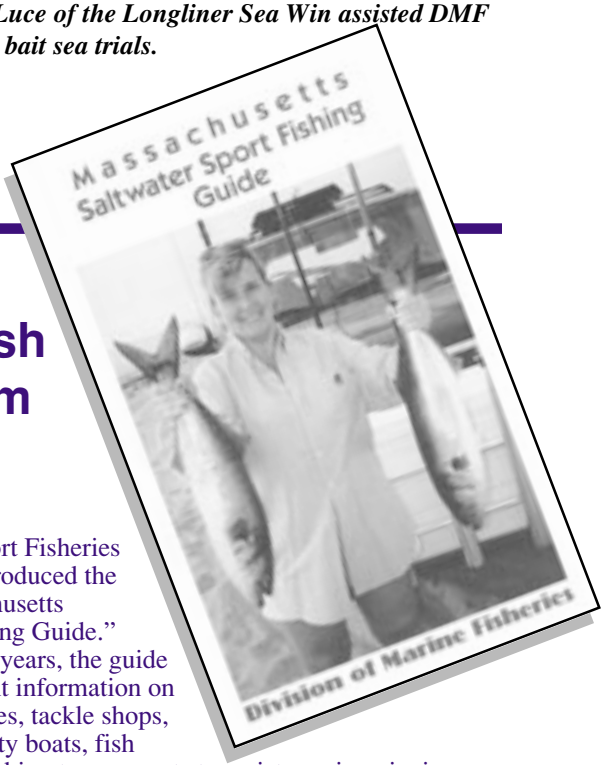
Effect of Composite Mesh Cod-ends on Trawl Selectivity

DMF is a collaborator with Dr. Chris Glass of MCCS, who leads this project. Composite mesh codends (a "cod-end" is the bag at the tail-end of a trawl net where fish are collected) were comprised of square mesh and diamond mesh panels. Diamond mesh is more efficient at letting small flounders escape and square mesh does a better job of letting small roundfish (e.g. cod, haddock) avoid capture. Manomet has collected data using Massachusetts and Maine fishing vessels and currently is analyzing results.

For more information contact Arne Carr or Mike Pol at DMF's Pocasset office @508-563-1779

Capt. Mark Leach of the longliner Sea Holly (pictured) and Capt.Thomas Luce of the Longliner Sea Win assisted DMF in the longline bait sea trials.

2001 Sportfish Program Guide



DMF's Sport Fisheries Program has produced the 2001 "Massachusetts Saltwater Fishing Guide." As in previous years, the guide contains current information on boat-launch sites, tackle shops, charter and party boats, fish profiles, and fishing tournaments to assist you in enjoying our spectacular array of fishing opportunities from shore or by boat.

A copy of the guide can be obtained at most bait and tackle shops, or at one of the field offices.

Cape Cod Bay Right Whale Update

DMF awarded long-awaited federal grant, 2001 a baby boom year, and entangled (now freed) whale movements impress scientists

Right whale protection and the coexistence of maritime industries and whales are high priorities for DMF. The past right whale season will be remembered for the right whale baby boom and the extraordinary results from the successful disentanglement of a nine-year old female right whale nicknamed "Calvin."

DMF got good news in May when it was awarded a $190,000 federal grant through the Northeast Consortium to conduct its right whale research and conservation program in Cape Cod Bay. These funds come after three years of requests for federal funding support, and will be spent next winter on DMF's highly successful January - May Surveillance and Monitoring Program, conducted by the Center for Coastal Studies. The program has been ongoing since 1998 and was developed by DMF with input from leading right whale researchers. It dovetails with similar programs in federal waters, other states' waters, and those in Canada to reveal whale movements and distribution of aggregations for management of maritime activities with an objective of avoiding harm to right whales.

DMF's program has become vital to federal scientists and managers who rely on timely and accurate photo-identification efforts to further right whale demographic studies. Results enhance our knowledge of the movement and fates of individual whales including those that have been entangled.

This past winter's program performed as advertised when the entangled whale "Calvin" (last seen off Canada last summer) was re-sighted in Cape Cod Bay in February. The whale had floating line through its mouth and wrapped around its body. Without the skills of our aerial survey team this whale may never have been detected because the line was not visible from the water. After repeated attempts to free the whale, the CCS Disentanglement Team attached a buoy rigged with satellite and radio transmitters to track the whale's travels (see box). After 36 days the tag and the remaining line came off the whale, and the whale has been documented gear-free. The Team suspects the steady drag from the buoy can sometimes help pull line off the whale. The DMF/CCS program is credited with playing a key role in resolving this entanglement.

This entanglement is similar in line type and location to the highly publicized case of #1102, an adult male seen during June off George's Bank with similar line cutting into its rostrum. These types of "floating" lines commonly are used by lobstermen and gillnetters who fish with ropes that are lighter than water and float off-bottom between traps or between nets and anchors. There is a growing consensus among Massachusetts fishermen that lowering the profile of these lines will prevent entanglements. DMF will propose new regulations at November public hearings to prohibit or restrict this line type.

The season was another success for right whale population studies. Over 80 different whales were photographed in Cape Cod Bay from mid-December through April 29. The season was typical with the daily survey counts peaking in late March and early April. In late April, right whales departed on schedule in herd-like fashion from the Bay. Their exodus was abrupt with the daily survey count from the Critical Habitat dropping from 18 on April 29 to zero two days later on May 1.

After a few years of depressingly poor reproduction (only five calves born in the last two years), the population got a boost this year with 30 newborn calves sighted off Florida and Georgia in the southeast Critical Habitats during December through March. On schedule the mothers and calves began arriving in Cape Cod Bay during the first week of April, and at least 6 were successfully identified.

The optimism generated by this record number of births has been tempered by the death of four calves. On two occasions, carcasses were seen floating off the Southeast U.S. coast, and scientists have not determined their causes of death. The second two dead calves were victims of vessel collisions and were seen off Virginia and Long Island, NY. Fishing gear entanglements are not linked to any of these four mortalities.

By Dan McKiernan For more information see DMF's web site http://www.state.ma.us/dfwele/dmf/dmfrtwhl or CCS' site at: http://www.coastalstudies.org/.

"Calvin" an entangled 9-yr. old female spotted by the DMF/CCS surveillance team in Cape Cod Bay off Plymouth. CCS staff tied a satellite transmitter to the trailing line and documented an impressive migration over five weeks between the two "Critical Habitats" of Cape Cod Bay and Great South Channel. Moreover the whale spent 2/3 of the time outside these two designated areas. The line and the telemetry buoy came off the whale on its own, and the whale appears scarred but is gear-free.

Photo and map courtesy of Center for Coastal Studies

Shark tracking: DMF and collaborators break new ground

Daily, hourly, and minute to minute behavior of sharks is being revealed through exciting new technology. DMF biologists are collaborating with scientists from other institutions to investigate fine-scale movements critical to understanding basic biology of these elusive fishes.

When most people think of sharks, they think of warm, tropical waters and man-eating monsters. Contrary to their reputation a dozen shark species migrate into cold New England waters to feed, mate, or give birth to young. This is not a new phenomenon. Massachusetts is a favorite summering ground for blue sharks, shortfin makos, threshers, smooth and spiny dogfish, basking sharks, sandbar sharks, duskies, tigers, and even the great white shark.

Sharks, like any fish that is exploited for recreational and commercial purposes, must be managed at sustainable levels. Basic information on age, growth, reproduction, migration, distribution, and feeding ecology is required. Since 1987, DMF's Massachusetts Shark Research Program has been collaborating with federal, academic, and private researchers to assemble these pieces of the sharks' biological puzzle. Moreover, the fishing public has provided samples, reports, or good old-fashioned fishing stories about sharks in Massachusetts waters greatly enhancing Program efforts.

What we are finding out is that all sharks are not alike. Some, like the sandbar shark, live over 50 years, while others including the offshore blue shark, less than 20. Some rarely wander close to shore while others are routinely taken by surf fishermen. We know from National Marine Fisheries Service shark tagging program data that many species are wide-ranging in the North Atlantic and make large predictable seasonal migrations. However, standard tagging does not reveal what a shark does on a finer scale, that is, on a minute by minute basis. Where is it in the water column? What water temperatures does it prefer? How fast does it travel?

To answer these questions, DMF biologists and other researchers have used sophisticated electronic tracking equipment to follow sharks. The method, acoustic telemetry, involves the placement of a transmitter (pinger) on the shark and tracking with an underwater listening device (hydrophone) and receiver. By following the shark and collecting oceanographic data with the tracking vessel, we discover basic behavior relative to its environment. DMF biologists used similar techniques in the 90s when they worked with New England Aquarium scientists to determine movements and distribution of giant bluefin tuna.

Blue Sharks

DMF researchers have tracked blue sharks, an abundant offshore species growing to over 12 feet and 400 pounds. The world record (International Game Fish Association) blue shark of 454 lbs. was taken about 30 miles south of Martha's Vineyard by a Massachusetts angler. Although thousands of blue sharks are caught each year by recreational fishermen, well over 95% are released.

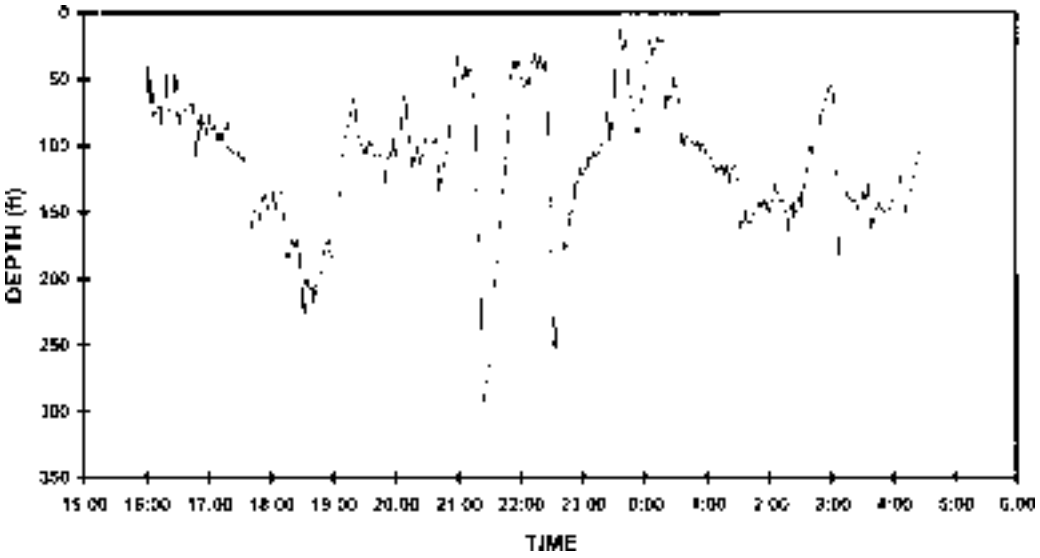
Our tracking study objectives were to determine survival after a fight on rod and reel. Four blue sharks were fought for over 30 minutes, released with transmitters, and tracked for several hours. All sharks immediately sounded into deep cool waters before slowly returning to warmer surface water. They repeated this behavior for one to two hours before assuming a more rhythmic vertical pattern of diving within the warmer surface layer of the water column. We surmised this latter behavior was normal, allowing sharks to maximize feeding opportunities by moving vertically through productive surface waters. Not only did all sharks survive, but they recovered within two hours and resumed normal behavior. This study showed that catch-and-release fishing for blue sharks has high post-release survival. This study was featured in the film "Sharks of the Deep Blue" which aired on Discovery Channel.

Greenland Sharks

DMF has collaborated with Tennessee Aquarium researcher George Benz to study Greenland shark behavior. This is an elusive cold water shark distributed from the high Arctic south to the coast of Massachusetts. This unique species grows to over 20 feet and is the only species of shark known to inhabit the sub-zero waters of the Arctic Circle. The Greenland shark is taken as bycatch in several Canadian bottom fisheries, and its flesh is considered poisonous. A consistent feature of all Greenland sharks is a crab-like parasite that infests their eyes, rendering them virtually blind. Published reports of this sluggish species indicate they are largely associated with the bottom, but are also known to feed on fast-moving prey like salmon and seals. Otherwise, virtually nothing is known about the biology of this species.

In May of 1999, the Peter Gimbel Foundation and the Boston Sea Rovers sponsored my travel to Baffin Island in the Canadian Arctic. The study area was Victor Bay, an ice-covered embayment about 1,000 miles south of the North Pole. To study Greenland shark movements, standard tracking equipment was not feasible because the six-foot ice layer prevented use of a tracking vessel. Instead, we deployed individually coded transmitters and remote receivers that allowed shark movements to be recorded under the ice. This was the first attempt to track a Greenland shark and the first endeavor to track any animal under Arctic ice.

A 3-foot female porbeagle shark with a transmitter shortly before relase. Photos by Greg Skomal



Vertical profile of the movements of a tagged Greenland shark showing repeated movements to - and from - the surface over a 13-hour period. Below left: A Greenland shark tethered below Arctic ice with a transmitter on its dorsal fin shortly before release.

Despite inhospitable conditions, the mission was a success. Six Greenland sharks were captured, outfitted with transmitters, and followed for periods up to 72 hours. Their behavior was astounding. Greenland sharks did not spend all of their time associated with the bottom, but instead made periodic trips to the surface ice. Despite its blindness, this species may actively hunt seals, using olfactory cues to find them moving about their ice lairs. This research was featured in the film "Jurassic Shark", which aired in 2000 on the Discovery channel.

Porbeagle Sharks

Returning a little closer to home, DMF collaborated with NMFS researcher Lisa Natanson in 2000 to track porbeagle sharks in the Gulf of Maine. Porbeagles are cold-water sharks ranging from temperate Canadian waters to Massachusetts. They are commonly taken by Canadian and US longliners. Some Massachusetts recreational fishermen catch them as well off Stellwagen Bank.

The porbeagle is known to reach 10 feet in length, is closely related to mako and white sharks, and is one of the few species of fish that can conserve metabolic heat and maintain a body temperature above that of surrounding sea water. Since this species is heavily fished by both Canadian and US fishermen, knowledge of its distribution and movements is essential for equitable utilization and management.

Using a commercial porbeagle longliner, we tagged two porbeagles in August, 2000 and tracked each of them for 48 hours. This was the first time porbeagle sharks had been tracked, and their behavior was surprising. The first porbeagle, a three-foot female less than one-year old, moved from where it was caught about 10 miles off the coast of Maine to inshore coastal islands. It spent most of the time in shallow areas moving vertically in warmer surface waters, probably feeding on large numbers of mackerel. This fish was so close to land that we were concerned the boat might go aground! The second porbeagle was a considerably larger female, close to seven feet and estimated at 12 years old, but still not mature. She was tagged about six miles off the coast of Maine and slowly traveled east across the Gulf of Maine for the next two days until entering Canadian waters shortly before tracking ended. Clearly, porbeagle sharks know no boundaries and management must reflect that.

These tracking studies provide important information on shark biology and ecology. DMF biologists also have had the opportunity to work with other large pelagic fishes. Over the last several years, bluefin tuna, yellowfin tuna, and white marlin have been tracked off the coast of New England and Hatteras, NC. These efforts provided valuable insights into hourly behavior of these remarkable fishes that, when coupled with life history information, provide federal and state managers with primary tools for optimal utilization and management of these species.

By Greg Skomal

Project Link & DMF form an educational partnership

Over the next year, students from Essex and Manchester schools will be testing water quality of Essex Bay, learning field and laboratory techniques, and gaining experience in boat handling and navigation as they take part in a hands-on environmental science program called Project Link. Project Link is a non-profit educational, research and development group directed by Essex resident John Henderson. The current project entitled, *Riddle of the Sands*, will enlist experts from DMF and a team of local science teachers to assist Henderson conduct the program. Working with professional biologists in the field to collect samples and processing information in the laboratory will help improve critical thinking skills of students and aid them in preparing for standardized tests such as the Massachusetts Comprehensive Assessment System (MCAS).

A training workshop for teachers and school department heads was held in April at the Division's Annisquam River Marine Fisheries Station (ARMFS). DMF staff demonstrated field and laboratory techniques that students will be utilizing for the project and provided GIS maps of Essex Bay that will be used as teaching tools in the classroom. Project Link's Director, John Henderson, stated, "*There is nothing that gives me more professional satisfaction than helping to form a dynamic educational partnership such as ours. Representatives from DMF, the Essex and Manchester schools, and our own maritime and educational specialists form what is, for me, the most exciting initiative we have undertaken to date. Come and join us as teacher and student teams master boat handling and navigation skills on our Flagship 'Firebird' in Essex Bay or as we collect water quality and phytoplankton samples for analysis. Read the results of our Research Project that will test for levels of nutrients in the Essex River before and after the new Essex Sewer System goes on line. This hands-on problem-solving education is what brings relevance to learning. It is the kind and quality of education that should be, and could be, a part of every school's curriculum in the 21st century.*"

Base funding for Project Link is from the Massachusetts Department of Education, but other funding sources are occasionally available and most welcome. The *Riddle of the Sands* project is supported by money from the Edwin S. Webster Foundation

By Laura Savina

Project Link Director John Henderson addresses area science teachers at DMF's Annisquam Fisheries Station

John Pappalardo Appointed to the Marine Fisheries Commission

Governor Jane Swift recently appointed John Pappalardo of Chatham to the state Marine Fisheries Commission. John replaces longtime MFC member Kemp Maples who left in February 2000. John, the Membership Director for the *Cape Cod Commercial Hook Fishermen's Association*, is a commercial fisherman and certified charter boat captain. He's familiar with the fishery management scene as a member of the New England Fishery Management Council's Enforcement Advisory Panel and the Mid-Atlantic Council's Dogfish Advisory Committee as well as DMF's Striped Bass Advisory Panel.

The MFC was established by the Legislature in 1961, and its members are "qualified in the field of marine fisheries by training and experience." Members are appointed by the governor to 3-year terms, and they attend monthly business meetings as well as quarterly public hearings. Regulatory changes and public proposals are approved or disapproved by a majority vote at the Commission's monthly business meetings. Other current commission members are: Chairman Mark Amorello, Vice-Chairman Bill Adler, Clerk Pat Frontierro, Mark Weissman, Vito Calomo, Chuck Casella, Mike deConinck, and Rip Cunningham.

MFC Chairman Mark Amorello appointed to New England Fishery Management Council

U.S. Secretary of Commerce Donald Evans announced on June 27 that Massachusetts fisherman and businessman Mark Amorello will succeed Bill Amaru on the New England Fishery Management Council.

Amorello is owner of *Ocean Works, Inc.*, a custom metal fabrication company established in 1988. A commercial fisherman who fishes for tuna and lobster, he is the current chairman of the state's Marine Fisheries Commission. He also serves on the ICCAT (*International Commission for the Conservation of Atlantic Tuna*) advisory committee.

State Rep. Anthony J. Verga Honored with the 2000 Belding Award

State Representative Tony Verga (D-Gloucester) was awarded the eleventh annual Dr. David L. Belding Award for marine resource conservation at a ceremony in Weston. Representative Verga is a long time supporter of fisheries management and the interests of commercial and recreational fishermen in Massachusetts.

Department of Fisheries, Wildlife and Environmental Law Enforcement Commissioner David Peters presented Representative Verga with a Chelsea clock before the May meeting of the Marine Fisheries Commission. Drs. Roy Eldredge and Lizzie Eldredge (son-in-law and granddaughter of Dr. Belding) attended the luncheon and ceremony. DMF Director Paul Diodati also spoke on behalf of Representative Verga, praising his work in the Legislature and on many boards and commissions that work on fisheries management issues.

Along with his work in the Massachusetts Legislature, Representative Verga has been involved in fisheries issues as Executive Director of the Gloucester Fisheries Commission, and as a member of the Atlantic States Marine Fisheries Commission, New England Fishery Management Council, and New England Fisheries Development Foundation.

Dr. Belding's descendants fund the Belding Award in perpetuity. It is given to the individual who, in the opinion of DMF and the Commission, has done the most to promote the conservation and sustainable use of the Commonwealth's marine resources. Dr. Belding was well known both to medical students and shellfish wardens in the first half of the 20th century, as he conducted two distinguished careers simultaneously in medicine and marine biology. As a medical professor for Boston University, he wrote two textbooks in parasitology and physiology, and his work in marine biology became one of the cornerstones of today's Division of Marine Fisheries.

By Jeanne Shaw

From left to right: Director Paul Diodati, MFC Chairman Mark Amorello, Belding Award winner Tony Verga (center), Department Commissioner David Peters, and Vito Calamo.

DMF *Rules UPDATE*

Public Hearings • Regulations • Legislation

Regulatory Update

During the period April through June 2001, DMF and the Marine Fisheries Commission took the following actions:

Horseshoe crab fishery permitting changes: To comply with the interstate Horseshoe Crab Management Plan, DMF established separate permits for the bait fishery and for biomedical collection. Fishermen are now eligible to purchase only one permit (bait harvester vs. biomedical), and all crabs taken by fishermen with the bait permit are counted against the commercial quota regardless of where they sold them.

Fishermen with bait permit can use crabs for their own bait use; sell crabs to a bait dealer for eventual use as bait; or sell crabs to biomedical companies. Fishermen with biomedical permit are required to sell only to biomedical companies but may continue to harvest crabs after the state's quota is reached provided all crabs are returned alive to the water after bleeding.

By allowing crabs already counted against the quota to be bled before being used for bait, DMF accommodated the need for more crabs in the biomedical industry without compromising our quota management and statistics. By allowing some fishermen to become exclusive biomedical collectors, DMF is in compliance with the plan, and a supply of crabs for bleeding is maintained even after the quota is reached. In summary, this action: (a) addressed concerns about reduced crab survival rates after bleeding and handling by the biomedical industry; (b) reduced annual total numbers of crabs killed; and (c) created a better system to track crab landings.

Finally, the state's Marine Fisheries Commission **voted to deny a public petition** that sought to enact a night closure to harvesting; enact 96-hour closures around new and full moons; require conch fishermen to use bait bags; and enact a cap on new permits.

Trap tag deadline amended: The 2001 deadline for placing tags on traps was amended from March 1st to May 1st. This change was warranted to bring state regulation into conformity with those in federal waters and with some of the other states. Trap tags that display the fishermen's permit number and fishery are required on lobster pots, fish pots, and conch pots.

Fluke summer season rules set: The directed fishery for summer flounder (fluke) will open on Sunday, July 8, 2001 for all gear types, and will remain open until the quota is reached. There will be no commercial fishing for summer flounder on Fridays and Saturdays after July 8. To improve landings data, DMF will be requiring all fishermen who hold a fluke license to submit an annual catch report to DMF, similar to that required for striped bass. Catch reports were mailed to fishermen in late June. These data will allow us to

produce a more complete picture of landings by gear, time, and permit holder. There will not be separate quotas and/or seasons for draggers and hook fishermen as was proposed at public hearing. Possession limits for the two user groups, like last year, will be 300 pounds for netters and 200 pounds for fishermen using hook gear until the quota has been taken.

Squid Fishery Update: No changes to the squid trawl fishery off Falmouth: The MFC voted to deny the public petition to move the closure line from 1/4 to 1/2 mile from shore off Falmouth. Instead, DMF will investigate the potential of requiring trawlers to use a "raised footrope trawl" in the squid fishery to further reduce impacts on eel grass and by-catch. **The squid season was closed after June 8, 2001.** Inshore draggermen were disappointed by low squid catches after mid-May. DMF extended the season an additional 8 days in June in hopes higher catches would materialize, but they did not. Low catches discouraged most of the fleet from participating.

A request to allow hand-raking of surf clams in areas closed to dredging was aired at the March public hearings. DMF has drafted proposals on this issue to be aired at the upcoming July 31-August 2 hearings. Contact DMF for draft regulations.

Sea bass trip limits amended twice and fishery closed: The Quarter II (April - June) sea bass quota among all states was reached in early June so DMF and other states closed their sea bass fisheries for the final three weeks in June. Controversy surrounded this quota-managed fishery. Fishermen and fish buyers were frustrated by DMF's adoption of low trip limits despite the high catch rates. On May 19, DMF dropped the daily trip limit from 1,500 lbs. to 150 lbs. This action was mandated by an emergency action of the ASMFC Black Sea Bass Board that tried to prevent a premature closure of the fishery by slashing the trip limits to 150 lbs./day or 1,000 per week. *(All states are required to comply with ASMFC actions, else the state's fishery may be shut down by the U.S. Secretary of Commerce*). DMF re-adjusted the rules with an increased daily trip limit of 250 lbs./day complemented by three no-fishing days (Thursday-Saturday) each week.

These trip limit adjustments were challenged by a group of commercial fishermen in State court, but on June 19, a Superior Court Judge denied the motion for a preliminary injunction. Fishing re-opened on July 1 for the July - September period and the trip limit was 1,000 lbs. per day until 40% of the Quarter III quota is reached. Then the no-fishing days and 250 lbs. trip limit would re-triggered to extend the fishery as long as possible.

Dogfish Update:

DMF drops the dogfish minimum size regulation . After consultation with DMF's technical staff and review of current federal and interstate rules on spiny dogfish commercial harvest, Director Paul Diodati has decided to suspend the 31" minimum size regulation. This regulation was enacted in April of 2000 to minimize the take of immature females. However, federal plan objectives include shifting effort toward males that are predominately smaller than 31". DMF will accept comments on this change at the upcoming public hearing.

Low dogfish quota results in early closure. The federal commercial quota for all states (2.3 million lbs.) for Period I (May - October) was reached after just 8 weeks of fishing. The fishery was closed on June 25. This season was substantially shorter than last year's when DMF allowed Massachusetts commercial fishermen to land up to 7 million lbs. However, a recent vote by ASMFC required all states to abide by federal quotas. DMF will continue to advocate for slightly higher quotas at the interstate and federal levels, and if successful, the fishery could be re-opened later this summer. The remaining 1.7 million lbs. federal quota for November - April period will be available on November 1, but most dogfish will have departed state waters by that time

New Recreational Rules. *Most of these changes for 2001 bring the Commonwealth into compliance with species-specific interstate management plans. Changes have been enacted relating to the harvest of striped bass, summer flounder (fluke), scup (porgy), black sea bass, weakfish, and white perch.*

Summer Flounder (fluke): As a result of a recent federal court decision, summer flounder commercial and recreational limits were lowered for all states this season. For the Massachusetts recreational fishing sector, a reduction in harvest of 29% is required. To accomplish this, DMF enacted the following: minimum size limit of 16 1/2", bag limit of 7 fish and open season of May 25-September 5. These changes increase the size limit by one inch, decrease the bag limit by one fish and shorten the season by 40 days.

Scup and Black Sea Bass: The interstate management plan requires states to constrain recreational harvest to rebuild the scup and black sea bass stocks. To address past year's increases in recreational harvest along the coast, all states must enact new restrictions to constrain harvest in 2001. For Massachusetts anglers this will mean lower scup possession limits and shortened seasons for both scup and black sea bass, but size limits (9" for scup, 12" for sea bass) will remain the same.

Scup recreational possession limits: For anglers fishing from shore or private vessels, the daily possession limit will be 50 fish per angler and 100 per vessel. For anglers fishing aboard party or charter vessels the daily possession limit was 100 per angler during May and June, and 50 per angler beginning in July through the season's end.

Black sea bass and scup closed seasons: For black sea bass, fishing was prohibited prior to May 10; For scup, fishing will be prohibited after October 6 through the end of the year.

Weakfish: A daily possession limit of 12 fish per angler has been enacted. Prior to this year, there was no daily limit. While it's unlikely that many fishermen will have the opportunity to exceed a 12-fish daily bag while fishing Massachusetts waters, enactment of such a limit is consistent with the spirit and intent of weakfish recovery efforts. The 16" minimum size is unchanged.

White Perch: A 25-fish bag limit and an 8" minimum size were enacted for the first time. White perch are found in salt ponds and estuaries, grow up to 15" and are a popular recreational species. These rules will be similar to those in other states where the harvest of white perch is regulated. These white perch limits apply only to coastal waters defined as waters within the rise and fall of the tide but not above any fishway, dam, or tidal bound established by the Department of Environmental Protection. Taking white perch in fresh water is not affected by this change.

Contact DMF for more details. Gloucester office: (978) 282-0308; Boston office (617) 626-1520; Pocasset office (508) 563-1779; Martha's Vineyard office (508) 693-4372 or 508 693-0060.

Notice of Public Hearings

Scheduled for July 31, August 1 & 2, 2001

Under the provisions of G.L. Ch. 30A and pursuant to the authority found in G.L. Ch. 130 ss. 17A, 80, 100A, and 104, the Division of Marine Fisheries (DMF) and the Marine Fisheries Commission (MFC) have scheduled hearings on the following proposals. Contact the Division of Marine Fisheries for draft regulations and further details.

1. DMF proposal to establish a new special permit [322 CMR 7:01(4)] required by any vessel for-hire engaged in recreational fishing. Three categories are proposed: Head Boat - carrying seven or more paying customers; Charter Boat - carrying up to six paying customers; and Guide Boat - carrying up to two paying customers. This permit will bring Massachusetts into compliance with the Bluefish Management Plan and any future plans that may require stricter monitoring of the for-hire vessel sector. This new permit requirement may factor into future regulatory and allocation considerations and facilitate enforcement of certain exemptions granted to for-hire vessels, e.g. authorizations to filet striped bass as well as liberalized bag limits (cod, haddock, scup).

2. Public petition to enact a fixed gear-free zone in a portion of the seasonal Upper Cape Cod Bay Whiting Area (322 CMR 8.14). During October 2000 DMF enacted an emergency regulation to ensure a portion of the area was free of fixed gear to allow trawlers to fish for whiting. This petition requests a similar but permanent action for the September-October period. The area and time requested to be gear-free is that portion of the Whiting Area that lies in state waters east of the LORAN 13880 line and west of the 13830 line during all of September and October.

3. DMF proposal to amend surf clam regulations (322 CMR 6.08) to regulate the commercial harvest of surf clams by non-dredge gears (e.g. hand-harvest using SCUBA). DMF proposes to (a) Prohibit commercial harvest in waters shoreward of the 12 ft. mean low water contour; (b) Create a new permit for commercial hand-harvest of surf clams; (c) Limit commercial harvest to no more than 10 bushels per day; (d) For commercial harvesters using SCUBA, require a diver flag with the fisherman's permit number within 50 feet of the diver at all times; and (e) Prohibit wet storage of surf clams unless approved subject to a DMF wet storage permit. Also DMF will re-codify the regulations (322 CMR 6.08) to improve clarity and enforceability.

4. DMF proposal to amend regulations for dealers purchasing quota-managed species (322 CMR 6.00). For all of the quota-managed species (e.g. scup, striped bass, bluefish, summer flounder, black sea bass, horseshoe crab) uniform rules regarding reporting and record-keeping requirements are proposed. Dealers would be required to maintain written records of all purchases from commercial fishermen of all quota-managed species in the Massachusetts and maintain those records at a permanent place of business in Massachusetts for inspection by law enforcement officials. Dealers without a permanent place of business in Massachusetts would be prohibited from purchasing quota-managed species directly from commercial fishermen.

5. Accept comment on an emergency action that amended summer flounder recreational restrictions (322 CMR 6.22 and 6.09). To meet the requirements of the interstate plan DMF enacted rules designed to reduce recreational catches by 27%: minimum size limit of 16 1/2", bag limit of 7 fish and open season of May 25-September 5. These changes increased the size limit by one inch, decreased the bag limit by one fish and shortened the season by 40 days.

6. Accept comment on an emergency action that amended commercial black sea bass possession limits (250 lbs.) and the adoption of no-fishing days (Thursday, Friday, and Saturday) when 40% of the quarterly quotas are reached (322 CMR 6.28). This action was taken to ensure the state was in compliance with the April 2001 ASMFC emergency action.

7. Accept public comment on an emergency action that eliminated the spiny dogfish minimum size regulation (322 CMR 6.35).

Three public hearings are scheduled:

❖ Tuesday July 31, at the Sawyer Free Public Library, Gloucester, 7:00 PM
❖ Wednesday August 1, at the Mass. Maritime Academy in Buzzards Bay, 7:00 PM
❖ Thursday August 2, at Old Whaling Church (Baylies Room), Edgartown, Martha's Vineyard at 4 PM

Public comment on the above issues can be **mailed** or **faxed** to DMF through August 3, 2001

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http://www.state.ma.us/dfwele/dpt_toc.htm

DMF NEWS

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